

Awareness On Risk Factors Of Chronic Obstructive Pulmonary Disease (COPD) Among College Students

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ABSTRACT: *Chronic obstructive pulmonary disease (COPD) is a lung disease characterised by obstruction in the airflow which interferes with the normal breathing pattern. The World Health Organisation (WHO) announced COPD will be the third common cause for death by 2020. The objective of study is to assess the level of awareness of risk factors of COPD and its complications among college students. A Self structured questionnaire was circulated among 100 participants within university. This survey was done online using google forms link. The questions were designed in order to assess the knowledge about COPD and its risk factors. The results and responses were collected and analysed by using SPSS software. The findings from the study were represented in pie charts. In our study about 85% of individuals were aware that COPD is a respiratory disorder. 52% of participants know the difference between COPD and asthma. 58% of individuals were well aware of the signs and symptoms of COPD. From the survey conducted, the awareness and knowledge about risk factors and complications of COPD is found to be moderate. Further future studies and management programs may be conducted to create more awareness to the individuals.*

KEYWORDS: *Arrhythmia, Chronic Obstructive Pulmonary Disease (COPD), Online Survey, Smoking.*

1. INTRODUCTION:

Chronic Obstructive Pulmonary Disease(COPD) is a major cause for morbidity and mortality rate.It is characterised by the obstruction in the airflow that is only partially reversible (Fabbri and Hurd, 2003). Around 90% of death caused by COPD occurred mainly in middle income countries (Adeloye et al., 2015). The prevalence of COPD is more in places where pollution, smoking and environmental exposure are at its threshold levels. There are other factors which influence the risk of developing COPD are age(Gould et al., 2010), previous history of asthma(Guerra, 2005), genes(Weiss, 2010) and any early signs of respiratory infections (Martinez, 2009). The major causes are emphysema and bronchitis (Hnizdo et al., 2002). The chronic bronchitis definition used in epidemiologic study was variable, but the classic definition is chronic cough and sputum production last for at least 4 months for two consecutive years (Pauwels et al., 2001). Emphysema is lung disease which limits the airflow in and out of the lungs. It is most often seen in heavy or long line cigarette smokers(National Asthma Education and Prevention Program (National Heart, Lung, and Blood Institute). Second Expert Panel on the Management of Asthma and National Heart, Lung, and Blood Institute. National Asthma Education Program. Expert Panel on the Management of Asthma, 1998).

According to the World Health organisation,about 3 million people died of COPD in 2005, which count for 5% of total mortality worldwide(Buist et al., 2007). More recently, two nationwide indications estimated that the prevalence of COPD among people 40 years or even older increased rapidly to approximately 13.6% in the 2014-2015 census(World Health Organization, 2007). Although the early diagnosis of COPD is inevitable, patients suffering COPD often consult doctors in their late stages(Zhong et al., 2007). In the initial stages it appears normal discomfort in the breathing. The stages of COPD are mild, moderate, severe, very severe. Based on the stages of COPD life expectancy of individuals varies.

According to european respiratory society(EPS) only 25% of patients are diagnosed at their early stages(Xu et al., 2010). Since COPD is one of the non communicable diseases. Generally world countries give major attention to communicable diseases like HIV, Tuberculosis. But unaware of the fact that non communicable disease always creates a major disease burden in the world economy. Recent studies on carcinomas (Menon, Priya and Gayathri, 2016) (Wu et al., 2019) (Ramya, Priya and Gayathri, 2018) (Priya, Jainu and Mohan, 2018) (Rengasamy et al., 2018) (Gan et al., 2019), metabolic disorders (Mohan, Veeraraghavan and Jainu, 2015), enzymatic assays (Rengasamy et al., 2016), natural compounds in health and disease (Chen et al., 2019) (Ma et al., 2019) (Li et al., 2020), awareness studies (Shukri et al., 2016) and nanoparticles (Ke et al., 2019) enriched my knowledge and kindled my interest to pursue research. This epidemiological survey stemmed out for the current use in our community in this quarantine lockdown. The objective of study is to assess the level of awareness of risk factors of COPD and its complications among college students.

2. MATERIALS AND METHOD:

A Cross sectional study was conducted among 100 participants of age group between 18-25 years. The self structured questionnaire was designed containing 17 questions. The study setting used was prospective observational study. The approval was obtained from scientific review board, Saveetha Dental College, Chennai. The sampling method used here was simple random sampling. The questions are designed to assess the awareness, knowledge, attitude and perceptions of individuals about COPD. The results /responses obtained were statistically analysed using SPSS software for descriptive analysis. The results were represented in a pie chart.

3. RESULTS AND DISCUSSION:

In our study, 74% of individuals were well aware that COPD comes under respiratory disease, 14% of individuals felt it as a neurological problem(Figure-1). 88% of individuals were aware of the contagious nature of COPD, 12% of individuals were unaware(Figure-2). 72% of individuals answered COPD can be inheritable, 13% of individuals disagreed(Figure-3). 52% of individuals answered that COPD and asthma are different, 48% of participants were unaware (Figure-4). 55% of individuals felt smoking can't be the only cause for COPD, 45% of individuals denied(Figure-5). 58% of individuals were aware of different sources of cause,15% of individuals felt by air pollution, 19% of participants felt Fumes can be the cause

(Figure-6). 72% of individuals were aware of the ribbon colour of COPD ie: orange, 14% of individuals answered it as blue, 9% of individuals answered it as green(Figure-7). 56% of participants were aware of the symptoms of COPD ie: cough and shortness of breath, 25% of individuals felt cough, 12% of individuals answered differently as chest pain(Figure-8). 81% of participants were aware of awareness month of COPD ie:November, 7% of individuals felt February(Figure-9). 80% of individuals answered 14 years is the average life expectancy of COPD patients, 14% of participants felt around 10 years(Figure- 10).

87% of individuals believed lung transplant as a possible cure for COPD(Figure-11). 85% of individuals felt vaccines can somehow prevent COPD, 15% of participants denied the statement(Figure-12). More than 70% of individuals felt smoking habits started by the influence of friends(Figure-13) More than 80% of respondents answered that even biomass exposure can lead to COPD(Figure-14). 85% of individuals were well aware of the risk factors ofCOPD ie: arrhythmia,15% of individuals were unaware(Figure-15). 88% of individuals have the knowledge that COPD can also lead to lung cancer(Figure-16). 54% of individuals were aware that vitamin deficiency can't have any effect in causing COPD(Figure-17).

We have seen the association between gender and knowledge of individuals about the nature of COPD(Figure-18), knowledge of individuals about the nature of COPD as contagious or non- contagious(Figure-19), knowledge of individuals about genetic basis of COPD(Figure-20), knowledge of individuals whether COPD and asthma are similar(Figure-

21), awareness of individuals about smoking can only lead to COPD(Figure-22), awareness of individuals about other causes for COPD(Figure-23), knowledge of individuals about COPD ribbon colour(Figure-24), awareness of individuals about symptoms of COPD(Figure-25), knowledge of individuals about COPD awareness month(Figure-26) and knowledge of individuals about life expectancies of COPD patients(Figure-27).

In our present study, when the participants were asked if they were aware of COPD, 83% of individuals answered it was a respiratory disease, 9% as cardiovascular disease, 7% as neurological disorder and 1% as sexually transmitted disease(Figure-1). This finding was supported by(Fabbri and Hurd, 2003) (Ni *et al.*, 2015) in which 25% as respiratory disease,8.9% as cardiovascular disease, 3.4% of individuals as neurological disorder. In our study, 88% of individuals replied as contagious, but there were any previous articles supporting or opposing this statement(Figure-2). In our study ,72% of individuals answered COPD can be inheritable ,13% denied. This finding was similar to (Mannino *et al.*, 2002), in which the author strongly mentioned COPD is rarely genetic bias(Figure-3).

In our study, 52% of individuals responded to asthma and COPD are similar. But this finding was contradictory to(Golshan, Esteki and Dadvand, 2002), in which the author mentioned the exact differences between the COPD and asthma, only similarity was both comes under respiratory disease(Figure-4). In our finding, 55% of individuals answered smoking can't be the only cause for COPD. This was supported by(Baiardini *et al.*, 2019), in which case for COPD only 25% of individuals answered smoking(Figure-5). In our study,58% of individuals felt both air pollution and fumes cause COPD . This was supported by Sharifi *et al.*, 2015,in which majority of individuals answered air pollution(Figure-6)

In our study, around 77% of individuals answered the correct ribbon colour of COPD. This finding was supported by(Zielinski *et al.*, 2006), in which the author evidenced the awareness difference in the current generation (Figure-7). In our finding, 56% of individuals answered both cough and shortness of breath(Wang *et al.*, 2019) can be symptoms of COPD. This finding was similar to(Von Elm *et al.*, 2007), in which 72.5% of individuals and 58% cough(Figure-8). In our study,81% of individuals were aware of awareness month of COPD. This finding was similar to (Ponnulakshmi *et al.*, 2019), in which the author defined briefly about the increasing awareness of COPD(Fig-9).In our study, 80% of individuals answered 14 years as the life expectancy of COPD patients. The limitations faced during this study is involvement of a homogenous population with a small sample size.

CONCLUSION :

The awareness of risk factors of chronic primary obstructive disease [COPD] among young adults was found to be moderate. Future studies should concentrate more about vaccine production and availability. More awareness programs may be created to educate the society about the ill effects of smoking and risk factors and complications of COPD which will create a healthier society.

Authors Contribution:

A.Akshaya- Literature search, Data collection, Analysis V.Vishnu Priya- Data verification, Manuscript drafting K.R.Don- Data verification, Manuscript drafting R.Gayathri- Analysis, Manuscript drafting

Conflict of Interest: None

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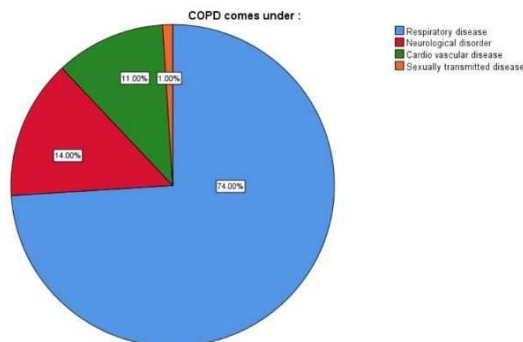


FIGURE:1

This pie chart denotes the knowledge about COPD

Figure 1: Pie chart showing the percentage distribution of responses on knowledge about COPD. About 74% of individuals perceived it to be respiratory disease(blue), 14% individuals knew it was neurological disorder(red), 11% individuals knew it was cardiovascular disease(green) and 1% individuals knew it was sexually transmitted

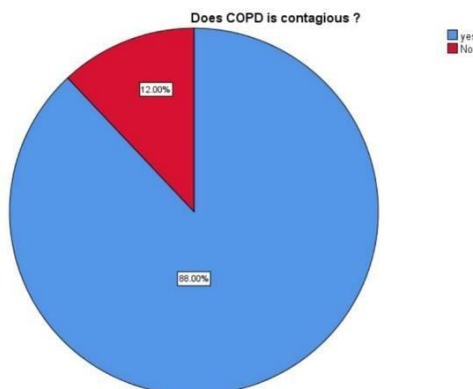


FIGURE:2

This piechart denotes the transmission nature of COPD

disease(orange). Majority of individuals replied to respiratory disease(74%).

Figure 2: Pie chart showing the percentage distribution of responses on transmission nature of COPD. About 88% of individuals perceived it to be contagious (yes-blue) and 12% knew it was not contagious (no - red). Majority of respondents have replied to yes(88%).

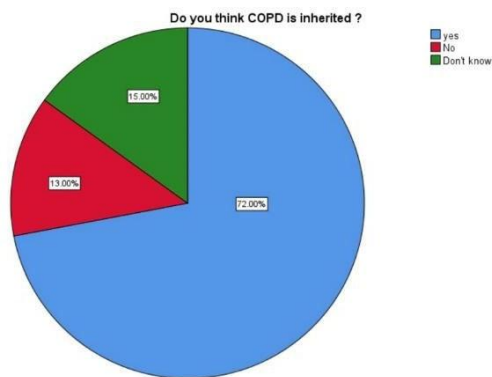


FIGURE:3

This piechart represents the knowledge about genetic basis of COPD

Figure 3: Pie chart showing the percentage distribution of responses on knowledge about the genetic basis of COPD. About 72% of individuals perceived it to be yes(blue), 13% individuals knew it was no(red) and 15%-doesn't know(green). Majority of individuals replied yes(72%).

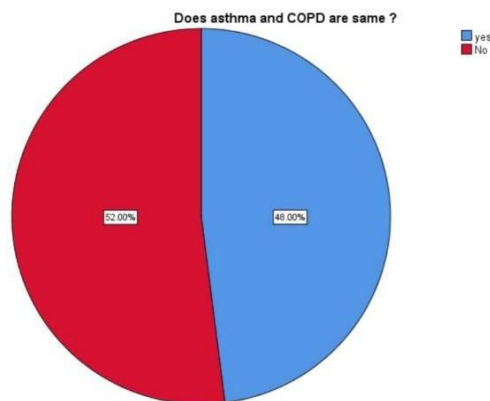


FIGURE:4

This pie chart finds whether COPD and asthma are similar

Figure 4: Pie chart showing the percentage distribution of responses to whether COPD and asthma are similar. About 48% of individuals perceived it to be yes(blue) and 52% individuals knew it was no(red) .

Majority of participants replied no(52%).

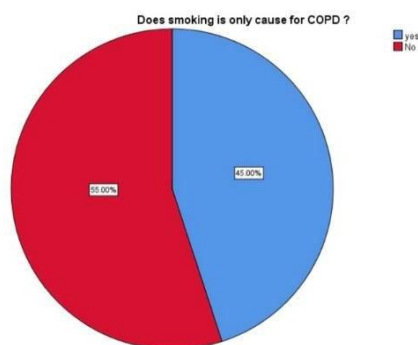


FIGURE:5

This piechart finds the smoking is only reason for COPD

Figure 5: Pie chart showing the percentage distribution of responses to smoking is the only reason for COPD. About 45% of individuals perceived it to be yes(blue) and 55% individuals knew it was no(red). Majority of individuals replied no(55%).

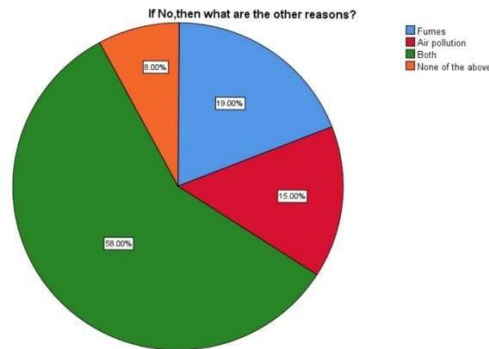


FIGURE:6
 This pie charts represents the other causes for COPD

Figure 6: Pie chart showing the percentage distribution of the responses to awareness of other causes for COPD. About 19% of the individuals perceived it to be fumes (blue), 15% individuals knew it was air pollution (red), 58% - both (green) and 8% - none of the above (orange).Majority of individuals replied both(58%).

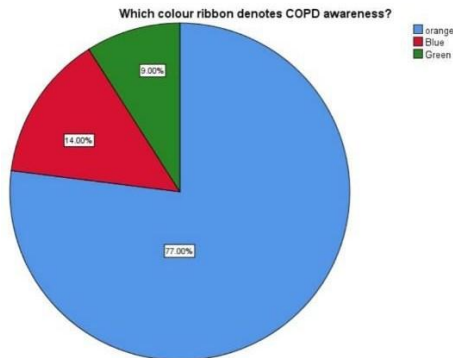


FIGURE:7
 This piechart denotes the knowledge of individuals about COPD ribbon colour

Figure 7: Pie chart showing the percentage distribution of responses to ribbon colour of COPD. About 77% of individuals perceived it to be orange (blue), 14% individuals knew it was blue (red) and 9% individuals knew it was green (green). Majority of participants have

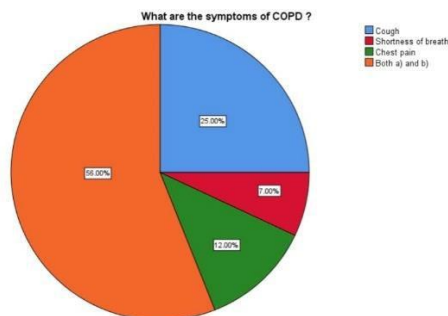


FIGURE:8
 This piechart represents the symptoms of COPD

reported that they were aware(77%).

Figure 8: Pie chart showing the percentage distribution of the responses to awareness of symptoms of COPD. About 25% of the individuals perceived it to be cough (blue), 7% individuals knew it was shortness of breath (red), 12% individuals knew it was chest pain (green) and 56% individuals knew it was both a and b (orange). Majority of participants have reported that they were aware of symptoms(56%).

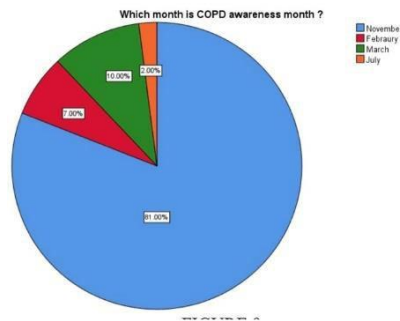


FIGURE:9

This pie chart represents the knowledge of individuals about COPD awareness month

Figure 9: Pie chart showing the percentage distribution responses to knowledge or awareness month of COPD. About 81% of individuals perceived it to be November(blue), 7% individuals knew it was february(red), 10% individuals knew it was march(green) and 2% individuals knew it was july(orange).

Majority of individuals replied november(81%)

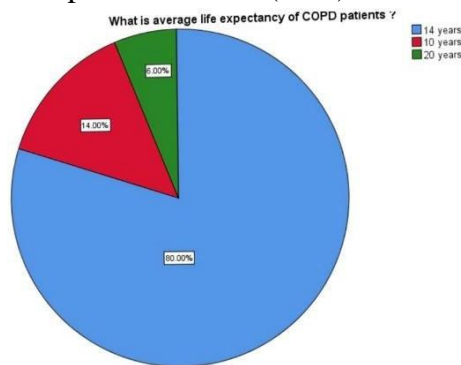


FIGURE 10

This pie chart denotes the knowledge about life expectancies of COPD patients

Figure 10: Pie chart showing the percentage distribution responses to life expectancy of COPD patients.About 80% of the individuals perceived it to be 14 years (blue), 14% individuals knew it was 10 years (red) and 6% individuals knew it was 20years (green). Majority of individuals replied 14 years(80%).

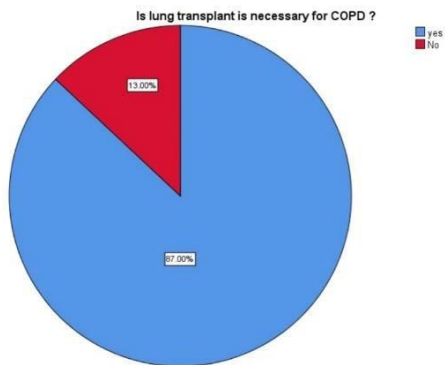


FIGURE:11

This pie chart represents the individuals opinion for necessity of lung transplant for COPD patients

Figure 11: Pie chart showing the percentage distribution responses to awareness of possibilities of lung transplant for COPD patients. About 87% of the individuals perceived it to be yes (blue) and 13% individuals knew it was no (red). Majority of individuals replied yes(87%).

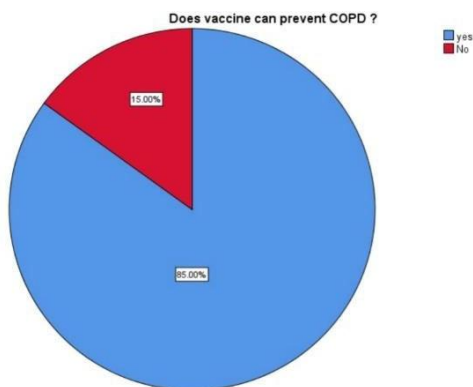


FIGURE:12

This pie chart represents the knowledge of vaccine prevent COPD

Figure 12: Pie chart showing the percentage distribution of responses to knowledge of vaccine prevention for COPD. About 85% of the individuals perceived it to be yes (blue) and 15% individuals knew it was no (red). Majority of individuals replied yes(85%).

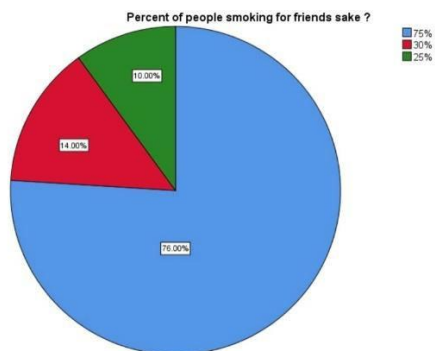


FIGURE:13

This pie chart represents the probability of individuals started smoking for friends sake

Figure 13: Pie chart showing the percentage distribution responses to probability that individuals started smoking for friends sake. About 76% of the individuals perceived it to be 75% (blue), 14% individuals knew it was 30% (red) and 10% individuals knew it was 25% (green). Majority of participants replied 75%(76%).

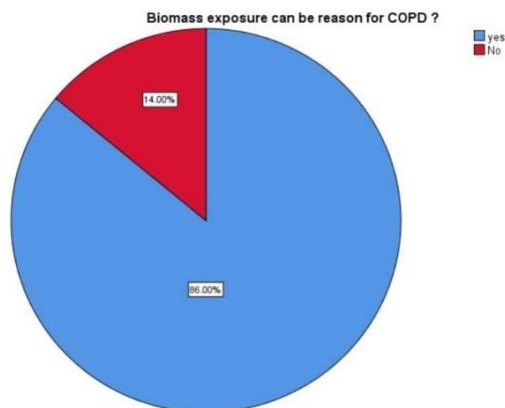


FIGURE:14

This pie chart represents the knowledge about biomass can be cause for COPD

Figure 14: Pie chart showing the percentage distribution responses to biomass exposure that can cause COPD. About 86% of the individuals perceived it to be yes (blue) and 14% individuals knew it was no(red). Majority of individuals replied yes(86%).

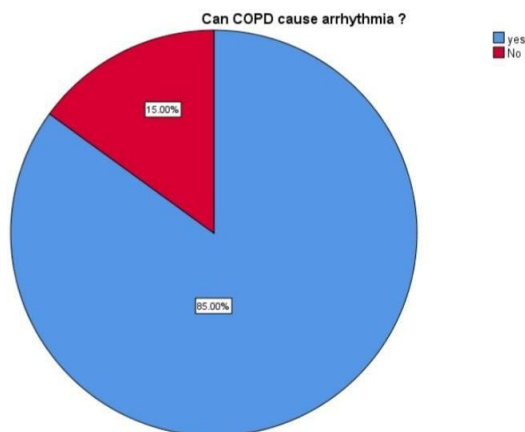


Figure 15: Pie chart showing the percentage distribution of responses to knowledge of individuals that COPD can cause arrhythmia. About 85% of individuals perceived it to be yes(blue) and 15% individuals knew it was no(red). Majority of participants replied yes(85%)

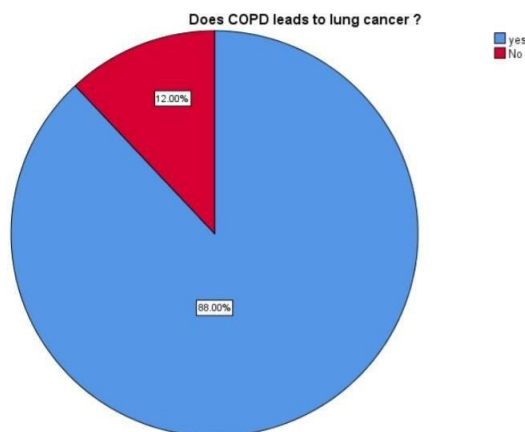


Figure 16: Pie chart showing the percentage distribution of responses to ideology of individuals that COPD can lead to lung cancer. About 88% of individuals perceived it to be yes(blue) and 12% individuals knew it was no(red). Majority of individuals replied yes(88%).

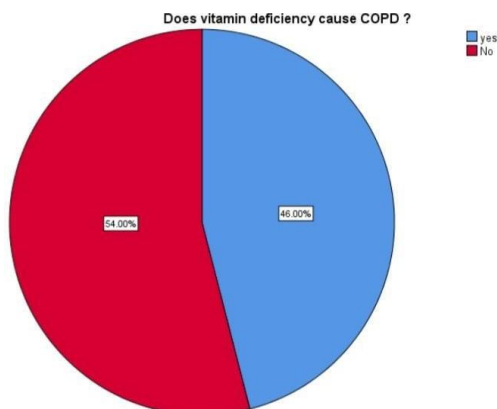


Figure 17: Pie chart showing the percentage distribution of responses about awareness of

individuals that COPD can be due to vitamin deficiency. About 46% of individuals perceived it to be yes(blue) and 54% individuals knew it was no(red).. Majority of participants replied no(54%).

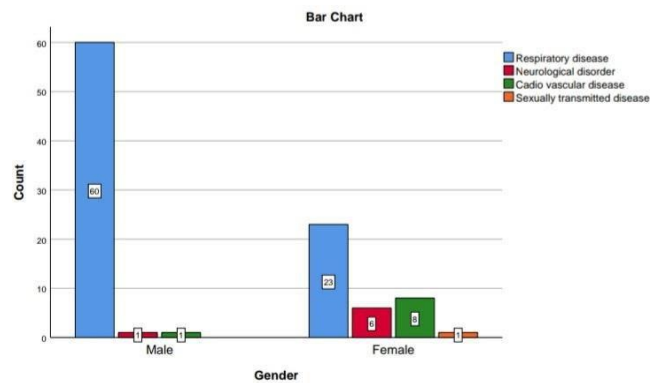


Figure 18: Bar graph represents the association between gender(X axis) and responses to knowledge of individuals about the nature of COPD(Y axis).60 male and 23 female participants reported respiratory disease, 1 male and 6 female participants reported neurological disease, 1 male and 8 female participants reported cardiovascular disease and only 1 female participant reported as sexually transmitted disease. Blue represents respiratory disease, red represents neurological disorder, green represents cardiovascular disease and orange represents sexually transmitted disease. Majority of male participants reported respiratory disease than female participants. There was a significant difference between gender and knowledge of individuals about the nature of COPD. Chi square value=22.018 and p=0.00 (p<0.05- statistically significant).

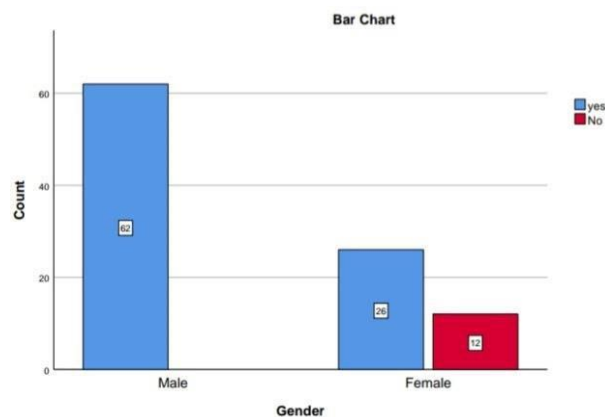


Figure 19: Bar graph represents the association between gender(X axis) and responses to knowledge of individuals about the nature of COPD as contagious or non-contagious(Y axis). 62 male and 26 female participants reported yes and only 12 female participants reported no. Blue represents yes and red represents no. Majority of male participants reported that they were more aware than female participants. There was a significant difference between gender and knowledge of individuals about the nature of COPD as contagious or non-contagious. Chi square value=22.249 and p=0.00 (p<0.05- statistically significant).

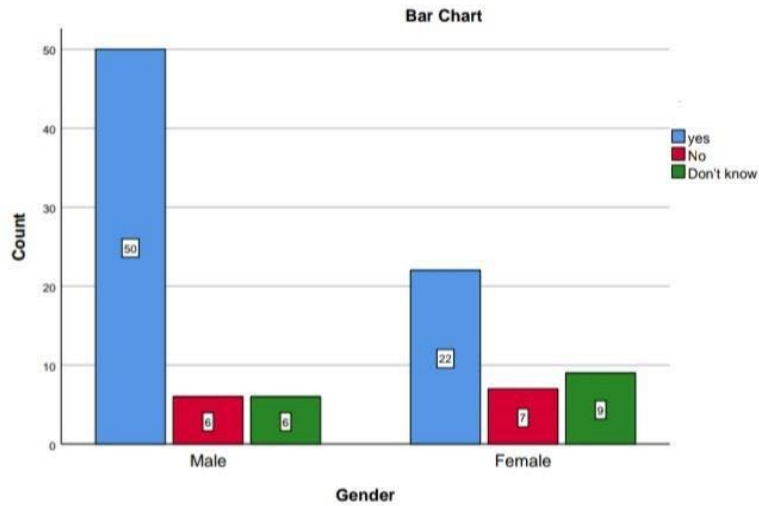


Figure 20: Bar graph represents association between the gender(X axis) and response to knowledge of individuals about the inheritance nature of COPD(Y axis). 50 male and 22 female participants reported yes, 6 male and 7 female participants reported no and 6 male and 9 female participants reported don't know. Blue represents yes, red represents no and green represents don't know. Majority of male participants reported yes and showed they were more aware than female participants. There was a significant difference between gender and knowledge of individuals about the inheritance nature of COPD. Chi square value=6.161 and p=0.046 (p<0.05- statistically significant).

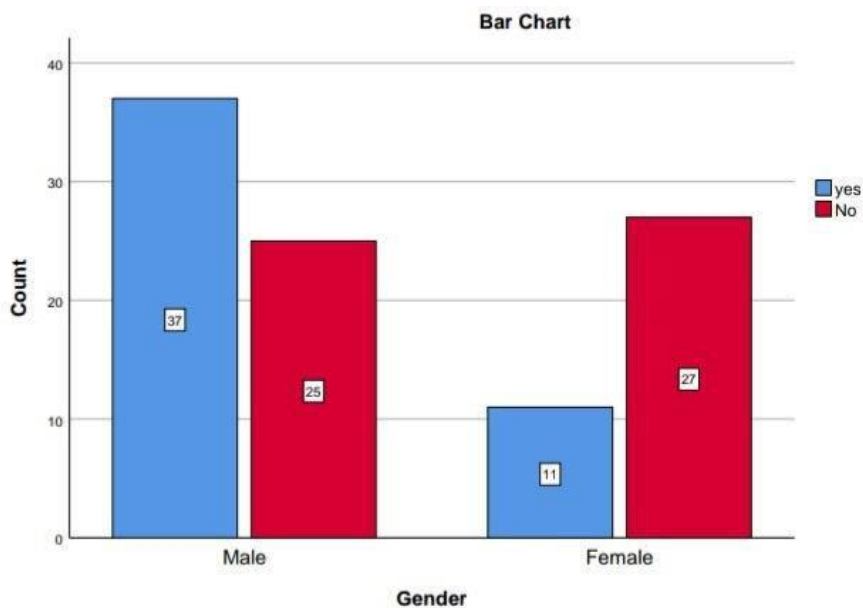
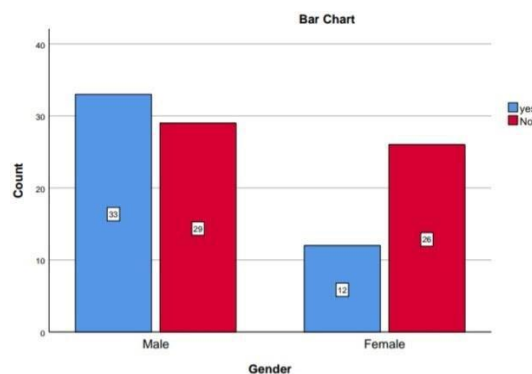


Figure 21: Bar graph represents the association between the gender(X axis) and responses to awareness of individuals about the difference of asthma and the COPD(Y axis). 25 male and



27 female participants reported no and 37 male and 11 female participants reported yes. Blue represents yes and red represents no. Majority of male participants reported yes than female participants. There was a significant difference between gender and awareness of individuals about the difference of asthma and COPD. Chi square value=8.914 and $p=0.03$ ($p<0.05$ - statistically significant).

Figure 22: Bar graph shows the association between gender(X axis) and responses to knowledge of individuals about the statement that only smoking can cause COPD(Y axis). 29 male and 26 female participants reported no and 33 male and 12 female participants reported yes. Blue represents yes and red represents no. Majority awareness response was given by both male and female participants. There was a significant difference between gender and knowledge of individuals smoking can only cause COPD. Chi square value=4.461 and $p=0.035$ ($p<0.05$ - statistically significant).

Figure 23: Bar graph represents the association between gender(X axis) and responses to knowledge of individuals about other causes of COPD(Y axis). 35 male and 23 female participants reported both, 17 male and 2 female participants reported fumes, 7 male and 8 female participants reported air pollution and 3 male and 5 female participants reported none of the above. Blue represents fumes, red represents air pollution, green represents both and orange represents none of the above. Majority of male participants reported both than female participants. There was a significant difference between gender and knowledge of individuals about other causes of COPD. Chi square value=9.690 and $p=0.021$ ($p<0.05$ - statistically significant).

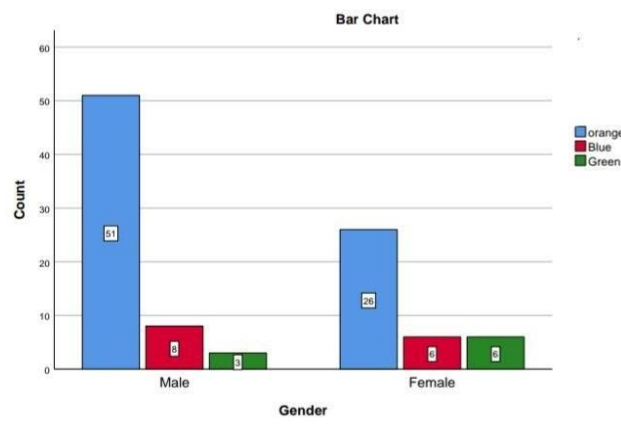


Figure 24: Bar graph represents the association between gender(X axis) and responses to awareness of individuals about the ribbon color of COPD(Y axis). 51 male and 26 female participants reported orange, 8 male and 6 female participants reported blue and 3 male participants and 6 female participants reported green. Blue represents orange, red represents blue and green represents green. Majority of male and female participants reported orange. There was no significant difference between gender and awareness of individuals about the ribbon colour of COPD. Chi square value=3.865 and $p=0.145$ ($p>0.05$ - statistically not significant).

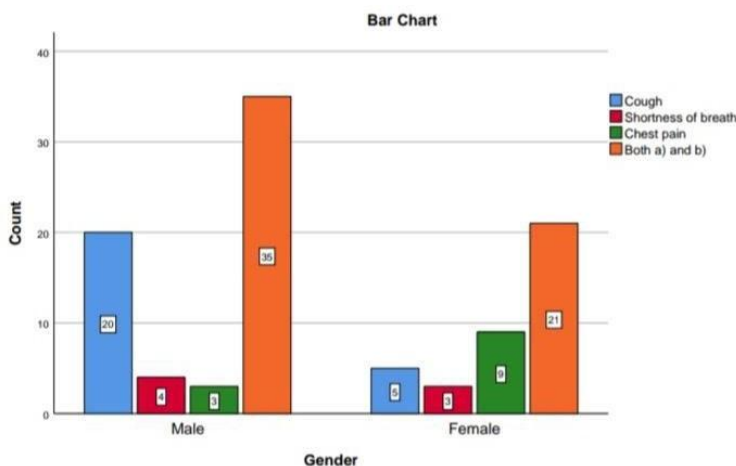


Figure 25: Bar graph represents the association between gender(X axis) and awareness of individuals about symptoms of COPD(Y axis) 35 male and 21 female participants reported both a) and b), 20 male and 5 female participants reported cough, 4 male and 3 female participants reported shortness of breath and 3 male and 9 female participants reported chest pain. Blue represents cough, red represents shortness of breath, green represents chest pain and orange represents both a) and b). Majority of male participants reported both a) and b) than female participants. There was a significant difference between gender and awareness of individuals about symptoms of COPD. Chi square value=10.487 and $p=0.015$ ($p<0.05$ - statistically significant).

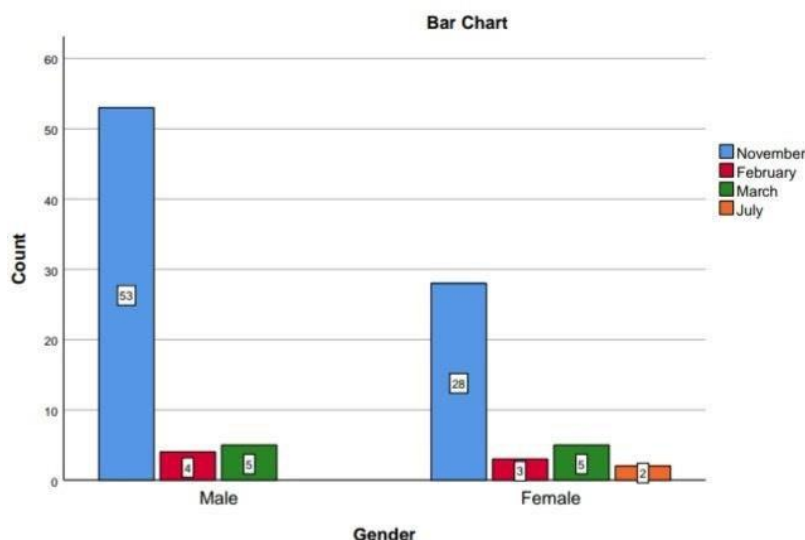


Figure 26: Bar graph represents the association between gender(X axis) and responses to awareness of individuals about awareness month of COPD(Y axis). 53 male and 28 female participants reported november, 4 male and 3 female participants reported february, 5 male and 5 female participants reported march and only 2 female participants reported july. Blue represents november, red represents february, green represents march and orange represents july. Majority of male participants reported November than female participants. There was no significant difference between gender and awareness of individuals about awareness month of COPD. Chi square value=4.349 and $p=0.225$ ($p>0.05$ - statistically not significant).

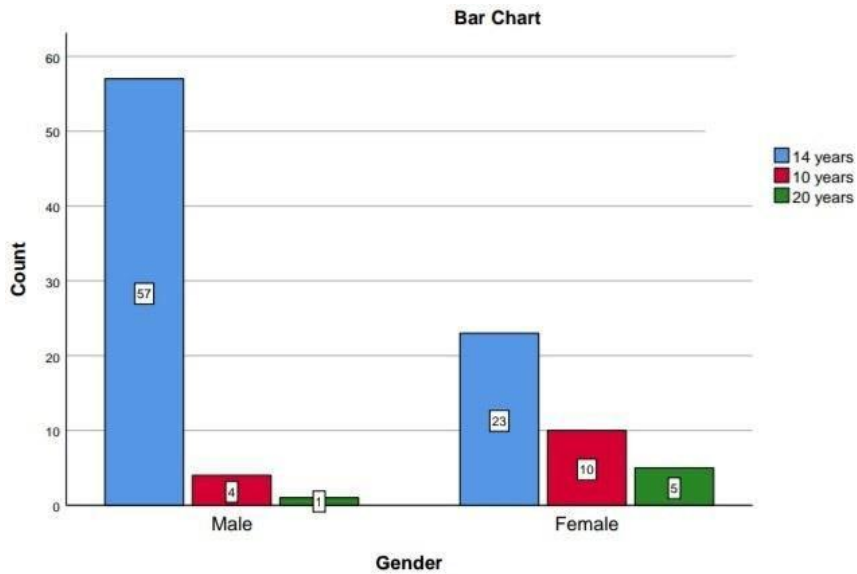


Figure 27: Bar graph represents the association between gender(X axis) and knowledge of individuals about average life expectancy of COPD patients. 57 male and 23 female participants reported 14 years, 4 male and 10 female participants reported 10 years and 1 male and 5 female participants reported 20 years. Blue represents 14 years, red represents 10 years and green represents 20 years. Majority of male participants reported 14 years life expectancy than the female participants. There was a significant difference between gender and knowledge of individuals about average life expectancy of COPD patients.

Chi square value=14.779 and $p=0.001$ ($p<0.05$ - statistically significant).